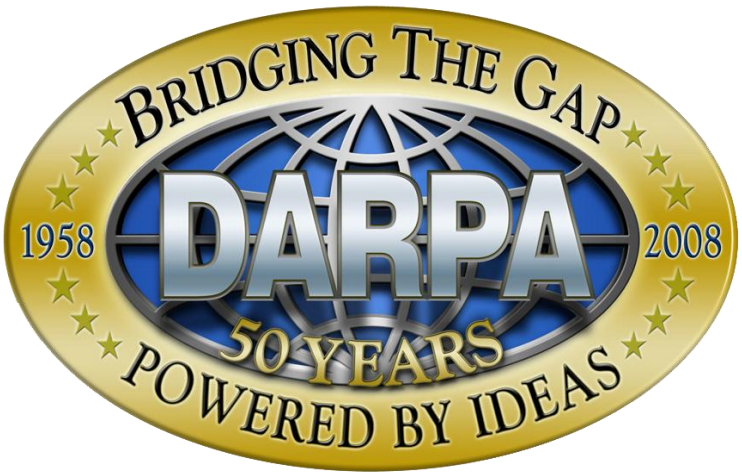

Broad Agency Announcement

Military Networking Protocol (MNP)

STRATEGIC TECHNOLOGY OFFICE

DARPA-BAA-09-11

28 October 2008

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Part One: Overview Information

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Strategic Technologies Office
- **Funding Opportunity Title –** Military Networking Protocol (MNP)
- **Announcement Type –** Initial announcement
- **Funding Opportunity Number –** Broad Agency Announcement DARPA-BAA-09-11
- **Catalog of Federal Domestic Assistance Numbers (CFDA) "Not applicable."**
- **Dates**
  - Proposers Day: 18 December 2008
  - Proposals Due: 18 February 2009
  - BAA Closing Date: 27 October 2009
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Types of instruments that may be awarded** -- Procurement contract or other transaction.
- **Agency contact**
  - Points of Contact
    The BAA Coordinator for this effort may be reached at:
    Electronic mail: DARPA-BAA-09-11@darpa.mil
    BAA Coordinator
    DARPA/STO
    ATTN: DARPA-BAA-09-11
    3701 North Fairfax Drive
    Arlington, VA 22203-1714

Part Two: Full Text of Announcement

1. FUNDING OPPORTUNITY DESCRIPTION

The Defense Advanced Research Projects Agency often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first on the FedBizOpps website, http://www.fedbizopps.gov/. A Proposers' Day will be held 18 December 2008 to provide information on the Military Networking Protocol program; promote additional discussion on this topic; address questions from potential proposers; and provide a forum for potential proposers to present their capabilities for teaming opportunities. A Special Notice will be posted on http://www.fedbizopps.gov/ announcing the Proposers' Day. The following information is for those wishing to respond to the BAA.

DARPA is soliciting innovative research proposals in the area of computer network protocols. Proposed research should investigate innovative approaches that enable revolutionary advances over the current state of the art. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

1.1 PROGRAM OVERVIEW

The Military Networking Protocol (MNP) program will develop a network prioritization system with full user-level attribution for military computer networks. The protocols, techniques, and devices developed in the program will de-anonymize network data flows for those computers and network enclaves using MNP technology. Clearly identifying network traffic will allow the network infrastructure to explicitly provide prioritization levels at both the individual and unit level, reallocate bandwidth between users or classes of users, and automatically make quality of service decisions. The de-anonymized MNP traffic will be compatible with and transit existing Internet infrastructure carrying legacy Internet traffic. MNP-enabled networks may allow or deny entry or transit by unauthenticated data flows, and will transmit data as fast as (or faster than) existing legacy network protocols. Hardware developed in this program will be self-configuring and will greatly reduce the need for trained network personnel and overall network's maintenance cost.

It is envisioned that the MNP program will be a three phase program. The first phase of any contract from this solicitation will be negotiated as the base period and separate options will address Phases 2 and 3. Proposals to this BAA must include a full scope and price for all three phases of the BAA. The Program Metrics in Section 1.3 provide technical goals that may serve as the basis for determining whether satisfactory progress is being made to warrant continued funding of the program into Phases 2 and 3.

While portions of the MNP program are classified SECRET, significant portions of the program are unclassified. An overview of the security requirement for this program is in Section 6.2.1 of this Broad Agency Announcement. Full security details are in the Security Classification Guide that will be distributed in accordance with instructions contained in Section 6.2.1.

As described in Section 6.2.1 of this BAA and in the full Security Classification Guide, selected system performance data and implementation specifics are classified. All basic research is

unclassified, so it is feasible for proposers to this program to use people without security clearances in a research capacity. *Please note that results from classified testing, analysis, or implementation may not be passed back to research personnel without security clearances.*

It is anticipated that devices and software developed in the MNP program will eventually be used on both classified and unclassified Defense Department computing systems. Based upon the expected use of these MNP devices and software on unclassified computing systems, it is logical to assume that production MNP devices and software will also be unclassified. As such, the unclassified MNP devices and software may also be available commercially, possibly subject to sales restrictions under the International Traffic in Arms Regulations (ITAR). If the devices and software are unclassified and are—in some manner—commercially available, other potential users outside the United States Government include emergency services, the banking and finance sector, and the health care sector.

The MNP Proposers' Day is scheduled for 18 December 2008. The Proposers' Day is unclassified. Details for the Proposers' Day Announcement will be released in a future Special Notice through FedBizOpps https://www.fbo.gov.

1.2 DETAILED DISCUSSION

There are two key technological developments in the recent past that DARPA believes may be used to allow the MNP program to be successful. These are 1) flow-based techniques developed in previous DARPA programs (*i.e.*, the Control Plane program) for managing IP traffic and 2) software or Field Programmable Gate Array (FPGA) based routers. The software and FPGA routers are very flexible for experimentation and are significantly cheaper than older ASIC designs. Software routers can easily match hardware router performance at speeds up to 1 Gbps while recent work has shown FPGA routers to be adequate for network speeds up to 10 Gbps. Software routers should be able to meet the program's initial goals but may not meet the end of program goals.

The flow-based technologies previously developed by DARPA include the ability to manage flows at either the IP address and the individual flow; use explicit in-band signaling for negotiating transmission rates and priorities; split individual data transmissions and data flows across multiple physical data paths; and provide data transmission rates that exceed conventional TCP/IP by ten to forty times. These flow-based systems provide a scalable way to aggregate individual packets into manageable and controllable groups as needed in the MNP program.[1]

Using these Control Plane routers and flow technologies—or **any other** technologies or techniques developed by performers within this program—this program will deliver new attribution software for individual computers and new hardware (or software) routers that will replace enclave level routers at speeds up to 10 Gbps. **Flow-based systems and/or in-band signaling techniques are one possible way to implement the goals of this program**; **they are not the only way to achieve these goals**. There exist other approaches for solving these

[1] The in-band signaling techniques mentioned earlier are documented in the Telecommunications Industry Association specification TIA-1039. This document is for sale on the TIA Standards web site. There exist similar coordinated requirement and specification documents at the International Telecommunications Union (ITU). These are known as Y.FLOWREQ and Q.FLOWSTATESIG respectively.

problems. The same is true for software router replacements or router replacements based upon network processors or FPGAs. Proposals to this BAA will be evaluated independently for their overall technical approach and implementation strategy in accordance with the program's metrics. In this BAA, these techniques will generically be called flows or flow management for simplicity's sake. **Using the technology developed in the DARPA Control Plane program is not mandatory.**

A major part of the planned program deliverables described on pages 10 and 11 of this solicitation will be enclave level devices to replace enclave level routers or edge routers in the network. These devices will provide more functionality than normal routers. To avoid confusion between legacy routers and these router replacements, these new router replacement devices will be called Network Controllers (NC) in this BAA.

The Network Controllers will provide all normal router functionality and support all the Internet protocols that intra-Autonomous System (AS) routers support. However, unlike conventional routers, the Network Controllers will require no user-level configuration for Internet routing information nor will they require user-level configuration for network interface cards or line modules.[2] This does not mean that the Network Controllers are required to be fully self-configuring at the network level—although this is very desirable. If network level configuration is required it will be done centrally in an automated fashion conforming to the scalability and time limits addressed in the program's Metrics in Table 1 below.

Network Controllers **will be** user configurable for the identity of their organization. Authenticated users will be allowed to choose their organization, any supporting or attachment relationships, and general location from a menu. For example, *{Tactical Command Post}, {A Infantry}, {B Armored Brigade}, {C Airborne Corps}, ATTACHED TO {D Marine Expeditionary Force}, LOCATED IN {NW} {Iraq}.* This information will be maintained per flow and passed through the network as the flow is established and managed as required by the program's metrics (Table 1), and any additional functionality the proposer believes desirable. This flow information will be authenticated and verifiable by downstream Network Controllers. The Network Controller will add a ***{Priority}*** field to the packet. For attribution and authentication purposes, the first Network Controller in a flow's path will add a public key and digital signature for this information. The digital signature will also apply to the packet's IP addresses as it leaves the first Network Controller.

User level workstations, laptops, or tactical data devices using the MNP may require modification to provide information tracking the flow. The types of information from a user device should include {Users name}, {Rank}, {Position}, {Public Key}, {Ethernet address}, {device IP address}, {device IP port}, {device serial number, if applicable}, {a digital signature for this information}, and any additional functionality the proposer believes desirable. There may be an operational security (OPSEC) issue with sending this information openly and the network administrators may decide to reduce the specificity of the user's information sent into the larger network. It is desirable that the user level attribution details that the Network

[2] Proposers may assume that all network interfaces to be Ethernet (10M/100M/1G/10G) and that any conversion (*e.g.*, to a radio interface or different type of fiber connection) will be addressed with a separate communications converter that will be developed outside of the scope of this program.

Controller passes into the larger network be configurable at the system level (*i.e.*, by the person(s) configuring the overall network, not by the person programming the individual Network Controller's unit identity). Finally, the MNP user level device should be capable of an OPSEC handshake to another MNP user level device or a MNP enabled server (*e.g.*, a mail server or web server). An OPSEC handshake will allow the two MNP Network Controllers at each end of the connection to first connect to one another and establish a secure and encrypted connection. Commercial encryption (*e.g.*, Secure Socket Layer) is adequate for this encryption protection. Once the encrypted link is established the user level data is exchanged between the MNP end user devices.[3]

If user's data changes when it passes through the Network Controller, the Network Controller should **add** these changes to the flow authentication while retaining the original data. For example, if a Network Controller is acting as a Network Address Translation device, the original IP address must be retained in the MNP system's knowledge of that flow.

Authorized users will authenticate themselves to the system—whether on the Network Controller, a supporting server, or on an end user machine—using some type of physical token and a password or fingerprint verification. The physical token may be a smart card (*e.g.*, a military Common Access Card) or more ruggedized device using the same type of signing mechanisms found in the Common Access Card. The need for a token in the user device, supporting servers, and the Network Controller will require a separate token for the Network Controller and any supporting servers (*e.g.*, a mail server or web server).

By providing the level of authenticated identification to the network described above, the Network Controllers will have the ability to quickly provide any of the following:

- Attribution to the individual or military unit. At a minimum this must be possible at the Network Controllers at each end of an MNP connection. Attribution by intermediate Network Controllers is desirable.
- Bi-directional attribution. A user connecting to a server will be authenticated by the server's Network Controller; the server will be authenticated by the user's Network Controller. This provides bi-directional attribution for each military unit.
- Block (or allow) network traffic with (or without) MNP authentication. This allows military networks to communicate with each other, the Internet, and to protect military networks from unauthenticated non-military network traffic.

Using these capabilities as building blocks, the MNP system will have a prioritization system with at least thirty-two (32) levels; more than thirty-two priority levels are desirable. These prioritization levels will be configurable and changeable at the system level in an authenticated method. Data with a higher priority will be handled more expeditiously than traffic with a lower priority. There are no requirements for absolute delivery speeds or times because the MNP system is based on Internet technology.

[3] One of the performance metrics compares MNP data transmission speeds with legacy TCP/IP systems. Speed tests will be done in the OPSEC handshake mode, as well as the unencrypted mode. However, consideration will be provided for the time the OPSEC handshake adds to any data transfer.

The Network Controllers will be able to allocate different priorities to different individuals or units based upon their roles and identities. Data passing between two endpoints will generally have the same priority in both directions. This bi-directional priority is derived from the priority of the most privileged user in the connection. An exception to this general rule is if the performer makes a case for establishing different priority levels for different packet types within a single flow (*e.g.*, control versus data).

The Network Controllers will be able to manage available bandwidth on the basis of an individual, unit, or traffic type. For example, it should be possible to allocate the following priorities:

- Priority 1 to all commanders of grade O3 and higher
- Priority 5 to all other commanders
- Priority 10 to all units assigned to, attached to, or supporting a particular military unit
- All servers have a priority of 30
- Priority 15 to all others
- Use no more than 50% of any communications link for video traffic

The MNP system will be able to change the priorities within the system in a trusted and authenticated manner by network administrators and/or unit commanders. For operational reasons, it is highly desirable that these changes may be made from more than one location within a single administered network or network domain. It is desirable that these changes be made while interacting with a Network Controller and not directly from a user level device.

There may be times when a Network Controller's network configuration is missing or incorrect. In this case, the Network Controller will seek and discover other Network Controllers, exchange authentication tokens, retrieve, and load an appropriate network level configuration. It is desirable that a centralized network level configuration repository not be used for operational purposes.

Multiple MNP domains will eventually be linked together. MNP performers must develop technology to have these different MNP domains interact with each other, exchange configuration and prioritization data, and to correct and alert network administrators to problems with the joined MNP domains.

Connection mistrust is a network or domain administrator tunable parameter. MNP Network Controllers and/or MNP end-user devices must be able to:

- Log connections
- Verify the connection with the Network Controller on the other end
- Conduct periodic challenge/response sessions with the Network Controllers and/or MNP end-user devices on the other end of the connection
- Request a path trace through MNP Network Controllers in the connection and verify the connection with those other Network Controllers

As deliverables, performers must provide protocol implementations that replace or modify both the Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP) for the user level devices and the Network Controllers.

There may be times when it is not desirable to alter either the operating systems or other software/hardware of user level devices or servers. As a result, the MNP system must also be able to operate without user level authentication. When the system operates without user authentication, it will likely only have the Ethernet and IP address of the workstation. The Network Controller may include this limited user attribution data in the flow if the MNP system configuration specifies. The MNP system will make all priority decisions based on military unit identities programmed into the Network Controller when operating in this mode.

In summary, the goal of the MNP program is to develop an authenticated and attributable identification system for packet based, military data networks. The system should be extremely difficult to spoof or inject false traffic into. Using the identities provided, the system will be able to allocate and change priorities and bandwidth between individuals and organizations. Military or government data sent with the MNP will be compatible with normal Internet equipment to allow MNP traffic to pass through legacy network or encryption equipment. The program's focus is on military identification, authentication, and network command and control. **The MNP program is not developing technology to replace encryption (*e.g.*, IP-Sec, HAIPE, VPN, etc.). Additionally, key management, key distribution, and key revocation are not program requirements.**

DARPA seeks innovative proposals in the following **Areas of Interest**:

Technical Area One: TECHNICAL DEVELOPMENT

Performers in this area will:

- Develop new or modify existing technology to provide the Network Controllers and Network Controller functionality described in Section 1.2 of this BAA.
- Modify the operating system network components of user level devices and network servers (*e.g.*, web servers, mail servers, ftp servers) to provide the functionality described in section 1.2 of this BAA.
- Provide the performer for testing and security verification (TSV performer) adequate documentation and equipment to conduct all tests. For costing purposes, all Phase 1 communications links are 100 Mbps. Phase 2 will require 30% of the communications links to be 1 Gbps. In Phase 3 10% of the communications links will be 10 Gbps connections, 30% will be 1 Gbps links, and 60% 100 Mbps links.
- Provide code to the TSV performer for software security reviews.

Technical Area Two: TESTING AND SECURITY VERIFICATION (TSV)

Performers in the area will:

- Develop a SECRET test-bed that is scalable to the different number of machines and devices throughout the life of the program. In addition to accepting the MNP Network Controller devices, it will also have user level devices (either virtual or physical, but

some must be physical) to participate in the authenticated MNP network. The testing performer will provide 2–20 physical user level devices per Network Controller in the test-bed. These physical devices may incorporate virtual machines to simulate larger numbers of user devices. The user level devices—whether physical or virtual—must accurately reflect user level network traffic from an end user device.

- The performer for testing and security verification (TSV performer) will be required to test MNP implementations for configurations that use both 1) MNP enabled end-user devices and MNP Network Controllers, and 2) that only use MNP Network Controller devices. Both types of tests will be performed for all phases of the program in accordance with Table 1 below.
- The TSV performer will also provide all the network server infrastructure normally found in the size of the network being tested and simulated. For example, this includes all domain name servers, web servers, etc.
- Conduct the program metric tests at the end of each phase. These tests will address the suitability of each Technical Area One solution for all of the MNP program's metrics.
- Work with the Technical Area One performers to develop the best methods to "virtually" test large numbers of Network Controllers and user level devices. Conduct these tests and provide a full report to the DARPA Program Manager.
- Work with the Technical Area One performers throughout the program to review their designs for security flaws. Test and verify their designs for vulnerabilities on the test-bed. Provide interim and final reports of these security reviews and tests to both the DARPA Program Manager and the appropriately cleared Technical Area One performers.

Proposers may not propose to both Technical Area One and Technical Area Two but must include a full scope and price for all three phases of the BAA.

1.3 PROGRAM METRICS

In order for the Government to evaluate the effectiveness of a proposed solution in achieving the stated program objectives, proposers should note that the Government hereby promulgates the following program metrics that may serve as the basis for determining whether satisfactory progress is being made to warrant continued funding of the program. Although the following program metrics are specified, proposers should note that the government has identified these goals with the intention of bounding the scope of effort, while affording the maximum flexibility, creativity, and innovation in proposing solutions to the stated problem.

Proposals should cite the quantitative and qualitative success criteria that the proposed effort will achieve by the time of each Phase's program metric measurement.

Metric	Phase 1	Phase 2	Phase 3
Time to configure network controller (NC) with military identity data (*e.g.*, unit & location).	5 Minutes	5 Minutes	5 Minutes
Time to distribute military network C2 instructions and have all military network control devices respond (see scalability)	20 minutes	10 minutes	5 minutes
Military network command level supported	Specific unit	Part of unit*	Supporting unit**
Scalability: **Physical** Network Controller **devices tested**	20	100	200
Military network speeds supported	100 Mbps	1 Gbps	10 Gbps
Ability to allow or refuse connections: **without** attributions (*i.e.*, a normal IP packet) or **with** attributions (*i.e.*, one of the new packets)	Yes	Yes	Yes
Level of aggregation when filtering (allowing or refusing) connections with new attribution packets	Specific unit or specific individual	Part of unit*	Supporting unit**
Total Unit Cost: No particular target cost is provided however the solution with the best overall value (cost and performance included) will be given preference during future program down-selects	Minimum	Minimum	Minimum
Priority Levels supports	32	32	32
Generate all Network Controller (NC) configuration files for an Army division (300–400 network controllers)	≤ 6 hours	≤ 3 hours	≤ 1 hour
Network Controller (NC) boot-up time with unit ID and a pre-loaded configuration file	≤ 4 minutes	≤ 2 minutes	≤ 2 minutes
Network Controller (NC) boot-up with unit ID and without a configuration file (requires fetching from another NC)	≤ 20 minutes	≤ 10 minutes	≤ 4 minutes
Scalability: Virtual devices tested	≥ 200	≥ 1,000	≥ 10,000
Speed degradation compared to legacy network system without MNP	≤ 5%	≤ 2%	None
Military attribution level tracked	Individual	Individual	Individual
Connection mistrust level supported	Log individual connection Verify connection with other NC	Administrator tunable challenge and response for both time and packets	Verify the connection's path with other MNP devices
Connection type supported	Connection oriented (TCP)	Connection (TCP) and Connectionless (UDP)	Connection (TCP) and Connectionless (UDP)
Client software	Windows or Linux	Windows or Linux	Windows **and** Linux
Ability to provide unit level functionality without client (end host) modification	Yes	Yes	Yes

Table 1. Military Networking Protocol Program Metrics

* "Part of a unit" means any unit that is part of a parent unit is included in parent unit instructions. For example, X Brigade, Y Infantry Division is "part of" the Y Division

** "Supporting" units respond to commands given to units they support but are not "part of" the unit. For example, X-Y Field Artillery (FA) is "part of" the Divisional Field Artillery, but it is

direct "support of" Z Brigade, so priorities for Z Brigade can be inherited by X-Y FA. Units "attached" to another unit are, for the purposes of the MNP program's metrics, supporting. At a minimum, these supporting categories are Attached, Direct Support, General Support, and OPCON (Operational Control).

2. AWARD INFORMATION

Multiple awards are possible. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation, and to make awards without discussions with proposers. The Government also reserves the right to conduct discussions if the Source Selection Authority later determines them to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. Additionally, DARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that DARPA desires to award only portions of a proposal, negotiations may be opened with that proposer. If the proposed effort is inherently divisible and nothing is gained from the aggregation, proposers should consider submitting it as multiple independent efforts. The Government reserves the right to fund proposals in phases with options for continued work at the end of one or more of the phases.

Awards under this BAA will be made to proposers on the basis of the evaluation criteria listed below (see section labeled "Application Review Information", Sec. 5.), and program balance to provide overall value to the Government. Proposals identified for negotiation may result in a procurement contract or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors.

3. ELIGIBILITY INFORMATION

3.1 ELIGIBLE APPLICANTS

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities. Federally Funded Research and Development Centers (FFRDCs) and Government entities (Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations and cannot propose to this BAA in any capacity, unless they can clearly demonstrate the work is not otherwise available from the private sector AND they also provide written documentation citing the specific statutory authority (as well as, where relevant, contractual authority) establishing their eligibility to propose to government solicitations. At the present time, DARPA does not consider 15 U.S.C. 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider

eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the Proposer.

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances.

3.1.1 Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 USC 203, 205, and 208.). The DARPA Program Manager for this BAA is Timothy Gibson. Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest and will promptly notify the proposer if any appear to exist. (Please note the Government assessment does NOT affect, offset, or mitigate the proposer's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.) Proposers should carefully consider the composition of their performer team before submitting a proposal to this BAA.

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 USC 203, 205, and 208.) Once the proposals have been received and prior to the start of proposal evaluations, the Government will assess whether any potential conflict of interest exists in regards to the DARPA Program Manager, as well as those individuals chosen to evaluate proposals received under this BAA. The Program Manager is required to review and evaluate all proposals received under this BAA and to manage all selected efforts. Proposers should carefully considers the composition of their performer team before submitting a proposal to this BAA.

All Proposers and proposed subcontractors must therefore affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the Proposer supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval or a waiver from the DARPA Director, a Contractor cannot simultaneously be a SETA and a Performer. Proposals that fail to fully disclose potential conflicts of interests and / or do not have plans to mitigate this conflict will be rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Proposer should promptly raise the issue with DARPA by sending Proposer's contact information and a summary of the potential conflict by email to the mailbox address for this BAA at DARPA-BAA-09-11@darpa.mil, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government

after full consideration for the circumstances, any conflict situation cannot be effectively mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

3.2 COST SHARING/MATCHING

Cost sharing is not required for this particular program; however, cost sharing will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument (e.g., for any Other Transactions under the authority of 10 U.S.C. § 2371). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

4. APPLICATION AND SUBMISSION INFORMATION

4.1 ADDRESS TO REQUEST APPLICATION PACKAGE

This solicitation contains all information required to submit a proposal. No additional forms, kits, or other materials are needed. This notice constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for same will be disregarded.

4.2 CONTENT AND FORM OF APPLICATION SUBMISSION

4.2.1 Proposal Information

Proposers are required to submit full proposals by the time and date specified in the BAA in order to be considered during the initial round of selections. DARPA may evaluate proposals received after this date for a period up to one year from date of posting on www.fbo.gov. Selection remains contingent on availability of funds.

The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included into a single proposal.

Restrictive notices notwithstanding, proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate nondisclosure requirements. Proposals may not be submitted by fax or e-mail; any so sent will be disregarded.

Proposals not meeting the format described in the BAA may not be reviewed.

Proposers must submit an original and eight copies of the proposal and two (2) electronic copies of the proposal. The electronic versions are preferred to be in PDF and will be on a CD-ROM. However, all supporting files that made the final PDF version must also be included on the CD-ROM, particularly all Microsoft Word, Excel, and PowerPoint files. Each copy, whether hard copy or electronic must be clearly labeled with DARPA-BAA-09-11, proposer organization, proposal title (short title recommended), and Copy __ of __.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal to this BAA, should be directed to the following

administrative email address: DARPA-BAA-09-11@darpa.mil. DARPA intends to use electronic mail and fax for correspondence regarding DARPA-BAA-09-11. Proposals may not be submitted by fax or e-mail; any proposal sent by email will be disregarded. DARPA encourages use of the Internet for retrieving the BAA and any other related information that may be subsequently provided.

4.2.2 Restrictive Markings on Proposals

All proposals should clearly indicate limitations on the disclosure of their contents. Proposers who include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall-

(1) Mark the title page with the following legend:

> This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed-in whole or in part-for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this proposer as a result of, or in connection with, the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend:

> Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

Markings like "Company Confidential" or other phrases that may be confused with national security classifications shall be avoided. See Section 6.0, for additional information.

4.3 FORMATTING CHARACTERISTICS

4.3.1 Proposal Format

All proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two volumes. All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. Smaller font may be used for figures, tables and charts. The page limitation for proposals includes all figures, tables, and charts. Volume I, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach upon which the proposal is based. Copies of no more than three (3) relevant papers can be included with the submission. The bibliography and attached papers are not included in the page counts given below. The submission of other supporting materials along with the proposals is strongly discouraged and will not be considered for review. The Technical and Management Proposal (Volume 1) shall not exceed sixty (60) pages. The bibliography, attached papers, and resumes contained in Section IV are not included in the sixty (60) page limitation of the Technical and Management Proposal. All proposals must be written in English.

4.3.1.1 Volume I, Technical and Management Proposal

Section I. Administrative

A. Cover sheet. Format to be followed using the template provided as APPENDIX 1 to this announcement.
B. Official transmittal letter.

Section II. Summary of Proposal

A. Innovative claims for the proposed research. This section is the centerpiece of the proposal and should succinctly describe the uniqueness and benefits of the proposed approach relative to the current state-of-art alternate approaches. Deliverables associated with the proposed research and the plans and capability to accomplish technology transition and commercialization. Proposals should address the proposer's plans for technology transition and commercialization in detail. Transitioning the MNP into a commercially available product is important to the government and is addressed in the evaluation criteria (see Section 5.1.6).
B. Include in this section all proprietary claims to the results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are not proprietary claims, this should be stated.
C. Cost, schedule and payable milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the prime and major subcontractors, total cost and company cost share, if applicable. The payable milestones should enable and support a go/no-go decision for the next part of the effort. Additional interim non-critical management milestones are also highly encouraged at a regular interval.
D. Technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production. (In the proposal, this section should be supplemented by a more detailed plan in Section III.)
E. General discussion of other research in this area.
F. A clearly defined organization chart for the program team which includes, as applicable: (1) the programmatic relationship of team member; (2) the unique capabilities of team members; (3) the task of responsibilities of team members; (4) the teaming strategy among the team members; and (5) the key personnel along with the amount of effort to be expended by each person during each year, as well as Domicile (City and State) and every location (City, State, and Distance from Domicile) where each person will work at least 25% of their time.
G. A four-slide summary of the proposal in PowerPoint that quickly and succinctly indicates the concept overview, key innovations, expected impact, and other unique aspects of the proposal. The format for the summary slides is included as APPENDIX 3 to this BAA.

Section III. Detailed Proposal Information

A. Statement of Work (SOW) - In plain English, clearly define the technical tasks/subtasks to be performed, their durations, and dependencies among them. The page length for the SOW will be dependent on the amount of the effort. For each task/subtask, provide:
    - A general description of the objective (for each defined task/activity);
    - A detailed description of the approach to be taken to accomplish each defined task/activity);

- Identification of the primary organization responsible for task execution (prime, sub, team member, by name, etc.);
- The exit criteria for each task/activity - a product, event or milestone that defines its completion.
- Define all deliverables (reporting, data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities.
- A clear description and cost estimate of the final solution total unit cost should be provided and substantiated.

Note: It is recommended that the SOW be developed so that each Phase of the program is separately defined. Do not include any proprietary information in the SOW.

B. Description of the results, products, transferable technology, and expected technology transfer path enhancing that of Section II. B. Include in this section detailed rational regarding any and all proprietary claims to the results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are not proprietary claims, this should be stated.
C. Detailed technical rationale enhancing that of Section II.
D. Detailed technical approach enhancing and completing that of Section II.
E. Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.
F. Discussion of proposer's previous accomplishments and work in closely related research areas.
G. Description of the facilities that would be used for the proposed effort.
H. Detail support enhancing that of Section II, including formal teaming agreements which are required to execute this program. It is expected that Network Controllers developed in MNP will provide a major shift in network operations and economics. If you have an existing network equipment manufacturer on your team, your proposal should address how and why developing, manufacturing, and selling MNP Network Controllers fits into their long-term business plan.
I. Cost schedules and milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the primes and major subcontractors, total cost, and any company cost share. Note: Measurable critical milestones should occur regularly after the start of the effort. There should be a major milestone/technical meeting at least once every six months or two times during a proposed phase (not counting the program kick-off). Proposers should choose the interval for their proposal that has the greater number of meetings. Interim management milestones are highly encouraged at a regular interval in sufficient detail to enable the Government to determine continued funding or a rescope of the effort. These milestones should enable and support a go/no-go decision for the next part of the effort. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. Additionally, proposals should clearly explain the technical approach(es) that will be employed to meet or exceed each program metric and provide ample justification as to why the approach(es) is/are feasible.

Section IV. Additional Information
{Not included in the sixty (60) page limitation of the Technical and Management Proposal}
A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant papers can be included in the submission. Copies of resumes for key personnel should also be provided.

4.3.2.2 Volume II, Cost Proposal – {No Page Limit}
Cover sheet. Format to be followed using the template provided as APPENDIX 2 to this announcement.

Detailed cost breakdown to include:
(1) Total program cost broken down by major cost items to include:
   i. direct labor, including individual labor categories or persons, with associated labor hours and numbered direct labor rates
   ii. If consultants are to used, proposer must provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate
   iii. Indirect costs including Fringe Benefits, Overhead, General and Administrative Expense, Cost of Money, etc. (Must show base amount and rate)
   iv. Travel – Number of trips, number of days per trip, departure and arrival destinations, number of people, etc.
   v. Other Direct Costs – Should be itemized with costs or estimated costs. Backup documentation should be submitted to support proposed costs.
(2) Major program tasks by fiscal year
(3) An itemization of major subcontracts and equipment purchases, to include: a cost proposal as detailed as the Proposer's cost proposal; the subcontractor's cost proposal can be provided in a sealed envelope with the Proposer's cost proposal. Materials should be specifically itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, shall be provided. Please include a brief description of the Proposers' procurement method to be used;
(4) An itemization of any information technology (IT)[4] purchase including subcontractor cost (NOTE: For IT equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding)
(5) A summary of projected funding requirements by month; and

[4] IT is defined as "any equipment, or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, or such equipment in the performance of a service or the furnishing of a product. (b) The term "information technology" includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term "information technology" does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology."

(6) The source, nature, and amount of any industry cost-sharing. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each; and identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished / Facilities / Information, access to Government Subject Matter Expert/s, etc.
(7) All costs must be given in USD. Costs will not cite any foreign currencies or foreign currency exchange rates.

The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO). Subcontractor proposals should include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements.

Supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates in Section II C. above. Include a description of the method used to estimate costs and supporting documentation. Note: "cost or pricing data" as defined in FAR Subpart 15.4 shall be required if the proposer is seeking a procurement contract award of $650,000 or greater unless the proposers request an exception from the requirement to submit cost of pricing data. "Cost or pricing data" are not required if the proposer proposes an award instrument other than a procurement contract (e.g., other transaction.) All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime, shall be made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic / email, etc.), either by the Proposer or by the subcontractor organization.

Proposers must submit an OCI Mitigation Plan (if applicable) to detail what steps the contractor is performing to mitigate an actual or perceived conflict of interest.

All proposers requesting an 845 Other Transaction Agreement for Prototypes (OTA) must include a detailed list of payment milestones. Each such payment milestone must include the following: milestone description, exit criteria, due date, milestone payment amount (to include, if cost share is proposed, contractor and government share amounts). It is noted that, at a minimum, such payable milestones should relate directly to accomplishment of program technical go/no-go criteria as defined in the BAA and/or the proposer's proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer; however, it is noted that the Government prefers use of fixed price payable milestones to the maximum extent possible. Do not include proprietary data. If the proposer requests award of an 845 OTA as a nontraditional defense contractor, as so defined in the OSD guide entitled "Other Transactions (OT) Guide For Prototype Projects" dated January 2001 (as amended)(http://www.dau.mil/pubs/Online_Pubs.asp), information must be included in the cost proposal to support the claim. Additionally, if the proposer plans requests award of an 845 OTA, without the required one-third (1/3) cost share, information must be included in the cost proposal supporting that there is at least one non-traditional defense contractor participating to a significant extent in the proposed prototype project.

4.4 SUBMISSION DATES AND TIMES

4.4.1 Proposal Date
The proposal (original and designated number of hard and electronic copies) must be submitted to DARPA/STO, 3701 North Fairfax Drive, Arlington, VA 22203-1714 (Attn.: DARPA-BAA-09-11) on or before 4:00 p.m., local time at Arlington, VA, 18 February 2009, in order to be considered during the initial round of selections; however, proposals received after this deadline may be received and evaluated up to one year from date of posting on FedBizOpps. Proposals may be submitted at any time from issuance of this announcement through the closing date or due date otherwise specified by DARPA; however, proposers are warned that the likelihood of funding is greatly reduced for proposals submitted after the initial closing date deadline.

DARPA will post Question and Answer responses before final full proposals are due. In order to receive a response to your question, submit your question via email to DARPA-BAA-09-11@darpa.mil.

DARPA will acknowledge receipt of complete submissions via email and assign control numbers that should be used in all further correspondence regarding proposals.

Failure to comply with the submission procedures may result in the submission not being evaluated.

4.5 INTERGOVERNMENTAL REVIEW
Not applicable.

4.6 FUNDING RESTRICTIONS
Not applicable.

4.7 OTHER SUBMISSION REQUIREMENTS
Not applicable.

5. APPLICATION REVIEW INFORMATION

5.1 EVALUATION CRITERIA
Evaluations of proposals to Technical Area 1 and to Technical Area 2 will be accomplished through a scientific/technical review of each proposal using the following criteria, in order of descending importance: (5.1.1) Ability to Meet Program Go/No-Go Metrics, (5.1.2) Overall Scientific and Technical Merit; (5.1.3) Potential Contribution and Relevance to the DARPA Mission; (5.1.4) Realism of Proposed Schedule; (5.1.5) Proposer's Capabilities and/or Related Experience; (5.1.6) Plans and Capability to Accomplish Technology Transition; and (5.1.7) Cost Realism.

Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons.

5.1.1 Ability to Meet Program Go/No-Go Metrics

The feasibility and likelihood of the proposed approach for satisfying the program go/no-go metrics as stated in Section 1.3 of this BAA are explicitly described and clearly substantiated. The proposal reflects a mature and quantitative understanding of the program go/no-go metrics, the statistical confidence with which they may be measured, and their relationship to the concept of operations that will result from successful performance in the program.

5.1.2 Overall Scientific and Technical Merit

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks as referenced in Section 4.3.1.1, Section III, Detailed Proposal Information. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final product that achieves the goal can be expected as a result of award. The proposal clearly identifies major technical risks and planned mitigation efforts and provides ample justification as to why the approach (es) is / are feasible.

For Technical Area 2, a proposal's overall scientific and technical merit will include an evaluation of whether the Testing and Security approach proposed will thoroughly evaluate Technical Area 1 products for complete compliance with the MNP program's metrics.

5.1.3 Potential Contribution and Relevance to the DARPA Mission

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use.

5.1.4 Realism of Proposed Schedule

The proposer's abilities to aggressively pursue performance metrics in the shortest timeframe and to accurately account for that timeframe will be evaluated, as well as proposer's ability to understand, identify, and mitigate any potential risk in schedule.

5.1.5 Proposer's Capabilities and/or Related Experience

The proposer's prior experience in similar efforts must clearly demonstrate an ability to deliver products that meet the proposed technical performance within the proposed budget and schedule. The proposed team's expertise to manage the cost and schedule will be evaluated. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors. Proposals will be evaluated on their ability to form a cohesive team wherein the location of the staff and their percentage allocation of time will not be a hindrance to overall program success.

5.1.6 Plans and Capability to Accomplish Technology Transition

The capability to transition the technology to the research, industrial, and operational military communities in such a way as to enhance U.S. defense, and the extent to which intellectual property rights limitations creates a barrier to technology transition.

5.1.7 Cost Realism

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. This will be principally measured by cost per labor-hour and number of labor-hours proposed. The evaluation criterion recognizes that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DARPA discourages such cost strategies. Cost reduction approaches that will be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

After selection and before award the contracting officer will negotiate cost/price reasonableness.

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort. Award(s) may be made to any proposer(s) whose proposal(s) is determined advantageous to the Government regardless of its overall rating.

NOTE: PROPOSERS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.

5.2 REVIEW AND SELECTION PROCESS

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and fund availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in "Proposal Information", Section 4.2.1. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements.

Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants /experts who are strictly bound by the appropriate non-disclosure requirements.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. Upon completion of the source selection process, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

6. AWARD ADMINISTRATION INFORMATION

6.1 AWARD NOTICES

As soon as the evaluation of a proposal is complete, the proposers will be notified that 1) the proposal has been selected for funding pending contract negotiations, or 2) the proposal has not been selected. These official notifications will be sent via email to the Technical POC identified on the proposal coversheet.

6.2 ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

6.2.1 Security

All basic and applied research for the program, to include authentication algorithms and techniques, are unclassified. The classified portions of the program relate to implementation specifics, software source code, and executable files for the program's components relating to authentication, attribution, command and control, prioritization, and connection verification. Testing techniques, results, and system vulnerabilities are classified, while the final product is envisioned for use on both classified and unclassified military data networks. It is anticipated that MNP compliant systems will be commercially available on or shortly after the program's completion. These commercial MNP compliant systems may be subject to sales restrictions under the International Traffic in Arms Regulations (ITAR). Potential users for MNP compliant systems outside the United States Government include emergency services, the banking and finance sector, and the health care sector.

The Government anticipates Volume I proposals submitted under this BAA will be classified up to SECRET. Requests for the Security Classification Guide (DARPA-CG-544) and guidance regarding the marking, packaging and delivery of classified proposals provided in the DD Form 254 "Contract Security Classification Specification" should be sent to Joanna.Chaomalaguti.ctr@darpa.mil (with a copy to DARPA-BAA-09-11@darpa.mil) with Subject line titled "Request DARPA-BAA-09-11 Security Classification Guide" or fax to (703) 248-1910. The following information must be included to receive the information: Company Name, Company Address (Unclassified), Unclassified Fax, Point of Contact Name, POC Phone Number, POC Fax Number, POC-email, Company CAGE code.

A DD Form 254 will be issued and attached as part of the award. A SECRET facility clearance and a SECRET safeguarding clearance will be required to perform awards issued under this BAA.

Classified submissions shall be in accordance with the following guidance:

Collateral Classified Information: Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD

5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another original classification authority. Classified information at the Confidential and Secret level may only be mailed via U.S. Postal Service (USPS) Registered Mail or U.S. Postal Service Express Mail. All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be address to:

Defense Advanced Research Projects Agency
ATTN: STO
Reference: (DARPA-BAA-09-11)
3701 North Fairfax Drive
Arlington, VA 22203-1714

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency
Security & Intelligence Directorate, Attn: CDR
3701 North Fairfax Drive
Arlington, VA 22203-1714

All Top Secret materials should be hand carried via an appropriately cleared authorized, two-person courier team to the DARPA CDR. Prior to traveling, the courier shall contact the DARPA CDR at 571-218-4842 to coordinate arrival and delivery.

Special Access Program (SAP) Information: Contact the DARPA Special Access Program Central Office (SAPCO) 703-526-4052 for further guidance and instructions prior to transmitting SAP information to DARPA. Top Secret SAP, must be transmitted via approved methods for such material. Consult the DoD Overprint to the National Industrial Security Program Operating Manual for further guidance. *Prior to transmitting SAP material*, it is strongly recommended that you coordinate your submission with the DARPA SAPCO.

Sensitive Compartmented Information (SCI) Data: Contact the DARPA Special Security Office (SSO) at 703-812-1994/1993 for the correct SCI courier address and instructions. All SCI should be transmitted through your servicing Special Security Officer (SSO). SCI data must be transmitted through SCI channels only (i.e., approved SCI Facility to SCI facility via secure fax).

Proprietary Data: All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the Proposers' responsibility to clearly define to the Government what is considered proprietary data.

Proposers must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they

propose. It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided that the formal request is received at this office within 5 days after unsuccessful notification.

6.3 INTELLECTUAL PROPERTY

6.3.1 Procurement Contract Proposers

6.3.1.1 Noncommercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS, shall identify all noncommercial technical data, and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Proposers shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that proposers do not submit the list, the Government will assume that it automatically has "unlimited rights" to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data, and noncommercial computer software generated, developed, and/or delivered under any award instrument, then proposers should identify the data and software in question, as subject to Government Purpose Rights (GPR). In accordance with DFARS 252.227-7013 Rights in Technical Data - Noncommercial Items, and DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation, the Government will automatically assume that any such GPR restriction is limited to a period of five (5) years in accordance with the applicable DFARS clauses, at which time the Government will acquire "unlimited rights" unless the parties agree otherwise. Proposers are admonished that the Government will use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE."

A sample list for complying with this request is as follows:

NONCOMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

6.3.1.2 Commercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS, shall identify all commercial technical data, and commercial computer software

that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or commercial computer software. In the event that proposers do not submit the list, the Government will assume that there are no restrictions on the Government's use of such commercial items. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE."

A sample list for complying with this request is as follows:

COMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

6.3.2 NonProcurement Contract Proposers

6.3.2.1 Noncommercial and Commercial Items (Technical Data and Computer Software)
Proposers responding to this BAA requesting an Other Transaction shall follow the applicable rules and regulations governing that instrument, but in all cases should appropriately identify any potential restrictions on the Government's use of any Intellectual Property contemplated under that award instrument. This includes both Noncommercial Items and Commercial Items. Although not required, proposers may use a format similar to that described in Paragraphs 1.a and 1.b above. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE."

6.3.2.2 All Proposers – Patents
Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under your proposal for the DARPA program. If a patent application has been filed for an invention that your proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that you own the invention, or 2) proof of possession of appropriate licensing rights in the invention.

6.3.2.3 All Proposers-Intellectual Property Representations
Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the DARPA program. Additionally, proposers shall provide a short summary for each item asserted with less than

unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

6.4 MEETING AND TRAVEL REQUIREMENTS

For costing purposes proposers should anticipate a program kick-off for each phase in Arlington, VA or San Diego, CA, using the higher travel estimate of the listed locations. The DARPA Program Manager will conduct at least one visit with the performer during each phase, often corresponding with major programmatic milestones and demonstrations for the project. If the performer projects more than two meetings or reviews in accordance with paragraph 4.3.1.1, Section III, I, for costing purposes assume these will take place in the Arlington, VA area.

6.5 HUMAN USE

Proposals selected for contract award are required to comply with provisions of the Common Rule (32 CFR 219) on the protection of human subjects in research (http://www.dtic.mil/biosys/downloads/32cfr219.pdf) and the Department of Defense Directive 3216.2 (http://navymedicine.med.navy.mil/Files/Media/ecm/sitedata/BC325237-802E-D019-A78AF9A6F4DF4282/library/1-08%20-%20DODD%203216-2%20 (25%20Mar%202002.pdf). All proposals that involve the use of human subjects are required to include documentation of their ability to follow Federal guidelines for the protection of human subjects. This includes, but is not limited to, protocol approval mechanisms, approved Institutional Review Boards, and Federal Wide Assurances. These requirements are based on expected human use issues sometime during the entire length of the proposed effort.

For proposals involving "greater than minimal risk" to human subjects within the first year of the project, performers must provide evidence of protocol submission to a federally approved IRB at the time of final proposal submission to DARPA. For proposals that are forecasted to involve "greater than minimal risk" after the first year, a discussion on how and when the proposer will comply with submission to a federally approved IRB needs to be provided in the submission. More information on applicable federal regulations can be found at the Department of Health and Human Services – Office of Human Research Protections website (http://www.dhhs.gov/ohrp/). Any aspects of a proposal involving human use should be specifically called out as a separate element of the statement of work and cost proposal to allow for independent review and approval of those elements.

For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. The IRB conducting the review must be the IRB identified on the institution's Assurance. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. Consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance along with evidence of appropriate training all investigators should all accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or

Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that confirmation of a current Assurance and appropriate human subjects protection training is required before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. The IRB approval process can last between one to three months, followed by a DoD review that could last between three to six months. No DoD/DARPA funding can be used towards human subjects research until ALL approvals are granted.

6.6 ANIMAL USE

Any Recipient performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966, as amended, (7 U.S.C. 2131-2159); and (ii) the guidelines described in National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals."

For submissions containing animal use, proposals should briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. Animal studies in the program will be expected to comply with the PHS Policy on Humane Care and Use of Laboratory Animals, available at http://grants.nih.gov/grants/olaw/olaw.htm.

All Recipients must receive approval by a DoD certified veterinarian, in addition to an IACUC approval. No animal studies may be conducted using DoD/DARPA funding until the USAMRMC Animal Care and Use Review Office (ACURO) or other appropriate DoD veterinary office(s) grant approval. As a part of this secondary review process, the Recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at https://mrmc.amedd.army.mil/AnimalAppendix.asp

6.7 PUBLIC RELEASE OR DISSEMINATION OF INFORMATION

The following provision will be incorporated into any resultant contract:

(a) There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the DARPA Technical Information Officer (DARPA/TIO). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. Papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

(b) When submitting material for written approval for open publication as described in subparagraph (a) above, the Contractor must submit a request for public release request to the DARPA TIO and include the following information: 1) Document Information: document title,

document author, short plain-language description of technology discussed in the material (approx 30 words), number of pages (or minutes of video) and document type (briefing, report, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to tio@darpa.mil or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571) 218-4235. Refer to www.darpa.mil/tio for information about DARPA's public release process.

6.8 EXPORT CONTROL

Should this project develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community) with military or dual-use applications the following apply:

(1) The Contractor shall comply with all U. S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technologies, including technical data or software.

(3) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors**.**

6.9 SUBCONTRACTING

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. 637(d)), it is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and to assure that prime contractors and subcontractors carry out this policy. Each proposer who submits a contract proposal and includes subcontractors is required to submit a subcontracting plan in accordance with FAR 19.702(a) (1) and (2) should do so with their proposal. The plan format is outlined in FAR 19.704.

6.10 REPORTING
The number and types of reports will be specified in the award document, but will include as a minimum monthly financial status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

6.10.1 Central Contractor Registration (CCR)
Selected proposers not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to any award under this BAA. Information on CCR registration is available at http://www.ccr.gov.

6.10.2 Representations and Certifications
In accordance with FAR 4.1201, prospective proposers shall complete electronic annual representations and certifications at http://orca.bpn.gov.

6.10.3 Wide Area Work Flow (WAWF)
Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at http://wawf.eb.mil. Registration to WAWF will be required prior to any award under this BAA.

6.10.4 Earned Value Management (EVM)
DARPA will use **commercial** standards of Earned Value Management (EVM) to manage this program. Proposers selected for funding must be prepared to use—and possibly make changes to—their internal EVM reporting procedures. If a proposer selected for funding does not use EVM, at a minimum the following must be tracked and provided: "fully loaded" cost per month per major task, milestones or tasks projected for completion per month per major task. Because a large portion of the MNP program is labor, particularly in the early phases, using EVM will assist in the early identification of instances in which the performer is on budget but behind on deliverables.

6.11 AGENCY CONTACTS
Administrative, technical or contractual questions should be sent via e-mail to DARPA-BAA-09-11@darpa.mil. All requests must include the name, email address, and phone number of a point of contact.

Points of Contact
The technical POC for this effort is Tim Gibson:
DARPA/STO
ATTN: DARPA-BAA-09-11
3701 North Fairfax Drive
Arlington, VA 22203-1714

The contracting POC for this effort is Robin Swatloski:
DARPA/CMO
ATTN: DARPA-BAA-09-11
3701 North Fairfax Drive
Arlington, VA 22203-1714

The SECURITY POC for this effort is Joanna M. Chaomalaguti, electronic mail: Joanna.Chaomalaguti.ctr@darpa.mil
DARPA/SID
ATTN: DARPA-BAA-09-11
3701 North Fairfax Drive
Arlington, VA 22203-1714
(571) 218-4974

7.0 APPENDIX 1: VOLUME 1 COVER SHEET TEMPLATE

APPENDIX 1: VOLUME 1 COVER SHEET TEMPLATE
Volume I, Technical and Management Proposal
Copy # _of 6

(1) Lead Organization Submitting Proposal:_____

(2) Type of Business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSNIESS", "OTHER SMALL BUSNIESS, "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"

(3) Other team members (if applicable) and type of business for each:
Company 1 (Other Small Business)
Company 2 (Large Business)
Company 3 (Large Business)
University (Other Educational)

(4) Contractor's reference number (if any):_____

(5) Proposal Title:_____

(6) Technical point of contact to include:
Salutation, last name first name
Street Address
Street Address 2
City, State, Zip Code
Telephone, Fax (if available)
Electronic mail (if available)

(7) Administrative point of contact to include:
Salutation, last name first name
Street Address
Street Address 2
City, State, Zip Code
Telephone, Fax (if available)
Electronic mail (if available)

(8) Technical Area being proposed to (*e.g.*, Technical Area 2, Testing and Security Verification)

(9) Funding:	Funds Requested	Cost Share (if any)	Total Funds	Duration
Phase 1: BASE				
Phase 2: OPTION 1				
Phase 3: OPTION 2				

(10) Date proposal submitted: _____

8.0 APPENDIX 2: VOLUME 2 COVER SHEET TEMPLATE

Volume II, Cost Proposal
Copy # _of 6

(1) Lead Organization Submitting Proposal:_____

(2) Type of Business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSNIESS", "OTHER SMALL BUSNIESS, "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"

(3) Other team members (if applicable) and type of business for each:
Company 1 (Other Small Business)
Company 2 (Large Business)
Company 3 (Large Business)
University (Other Educational)

(4) Contractor's reference number (if any):_____

(5) Proposal Title:_____

(6) Technical point of contact to include:
Salutation, last name first name
Street Address
Street Address 2
City, State, Zip Code
Telephone, Fax (if available)
Electronic mail (if available)

(7) Administrative point of contact to include:
Salutation, last name first name
Street Address
Street Address 2
City, State, Zip Code
Telephone, Fax (if available)
Electronic mail (if available)

(8) Award Instrument Requested: cost-plus-fixed-fee (CPFF), cost-contract – no fee, cost sharing contract – no fee, or other type of procurement contract (specify), or other transaction

(9) Place and period of performance:_____

(10) Proposer's Cognizant Defense Contract Management Agency (DCMA), Defense Contract Audit Agency (DCAA) Information:

DCMA Administration Office (if known):
Salutation, last name first name
Street Address
Street Address 2
City, State, Zip Code
Telephone, Fax (if available)

DCAA Audit Office (if known):
Salutation, last name first name
Street Address
Street Address 2
City, State, Zip Code
Telephone, Fax (if available)

(11) DUNS number:_____

(12) TIN (Tax Information Number):_____

(13) Cage Code:_____

(14) Proposal Validity Period:_____

(15) Any Forward Pricing Rate Agreement, other such approved rate information, or such other documentation that may assist in expediting negotiations (if available).

(16) Funding:	Funds Requested	Cost Share (if any)	Total Funds	Duration
Phase 1: BASE				
Phase 2: OPTION 1				
Phase 3: OPTION 2				

(17) Technical Area being proposed to (*e.g.*, Technical Area 2, Testing and Security Verification)

(18) Date proposal submitted: _____

9.0 APPENDIX 3: FOUR SLIDE PROPOSAL SUMMARY

FOUR SLIDE PROPOSAL SUMMARY

(Company Name) Concept

INSERT GRAPHIC(S) Depicting Concept

- Bulleted List describing Company's proposed effort
  - How does it work?
  - How will your product meet the Program Metrics listed?

Source Selection Information – see FAR 2.101 and 3.104
FOR OFFICIAL USE ONLY – b(5), 5 USC 552

1

(Company Name) System Architecture

System Architecture Graphic

2

(Company Name) Schedule/Cost, Strengths/Risks

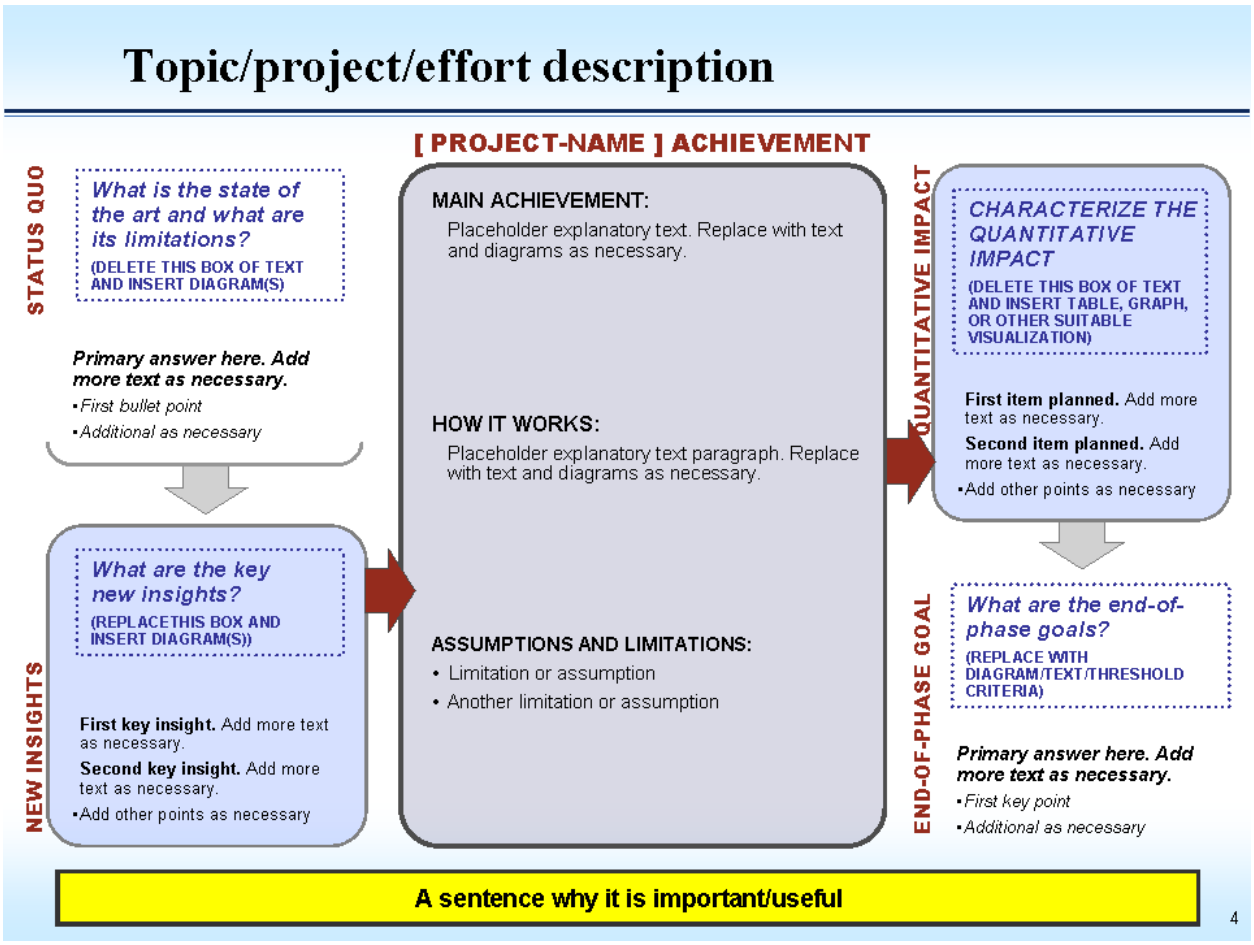
SCHEDULE/COST		
Phase 1:	# months	$__ Mil
Phase 2:	# months	$__ Mil
Phase 3	# months	$__ Mil
Total	# months	$__ Mil

STRENGTHS

- List Proposal Strengths
  - Why will the program goals be met?

RISKS

- List Proposal Risks
- What is your risk mitigation plan?


Topic/project/effort description
[PROJECT-NAME] ACHIEVEMENT
STATUS QUO
What is the state of the art and what are its limitations?
(DELETE THIS BOX OF TEXT AND INSERT DIAGRAM(S)
Primary answer here. Add more text as necessary.
▪First bullet point
▪Additional as necessary
NEW INSIGHTS
What are the key new insights?
(REPLACETHIS BOX AND INSERT DIAGRAM(S))
First key insight. Add more text as necessary.
Second key insight. Add more text as necessary.
▪Add other points as necessary
MAIN ACHIEVEMENT:
Placeholder explanatory text. Replace with text and diagrams as necessary.
HOW IT WORKS:
Placeholder explanatory text paragraph. Replace with text and diagrams as necessary.
ASSUMPTIONS AND LIMITATIONS:
• Limitation or assumption
• Another limitation or assumption
QUANTITATIVE IMPACT
CHARACTERIZE THE QUANTITATIVE IMPACT
(DELETE THIS BOX OF TEXT AND INSERT TABLE, GRAPH, OR OTHER SUITABLE VISUALIZATION)
First item planned. Add more text as necessary.
Second item planned. Add more text as necessary.
▪Add other points as necessary
END-OF-PHASE GOAL
What are the end-of-phase goals?
(REPLACE WITH DIAGRAM/TEXT/THRESHOLD CRITERIA)
Primary answer here. Add more text as necessary.
▪First key point
▪Additional as necessary
A sentence why it is important/useful
4